IN THE CLAIMS:

Please amend the claims as follows:

1. (Currently Amended) A method of utilizing a performance monitor cell for distributed optical performance monitoring in a network, comprising:

selecting a frequency range based on network traffic protocol and transmission rate;

tapping a portion of a signal in the network;

converting the portion of the signal to a digital signal;

sampling ~~a plurality of~~ 1024 points in the digital signal continuously at a frequency;

determining an average power of the ~~plurality of~~ points;

generating a spectrum in the frequency domain utilizing a Fast Fourier Transform;

generating a noise spectrum density from the spectrum and the frequency range; and

calculating an optical signal to noise ratio (OSNR) from the noise spectrum density and the average sampled points, wherein the optical signal noise ratio is used to determine the performance of the network.

2. (Original) The method of Claim 2, further comprising computing an average optical power from a pre-saved calibration table.

3. (Currently Amended) A method of utilizing a performance monitor cell for distributed optical performance monitoring in a network, comprising:

tapping a portion of a signal in the network and converting the portion of the signal to a digital signal;

sampling a plurality of points in the digital signal for a predetermined amount of time;

calculating a noise spectrum density from a spectrum and a frequency range based on network traffic protocol and transmission rate; and

calculating an optical signal to noise ratio (OSNR) from the noise spectrum density and a predetermined calibration data, wherein the optical signal noise ratio is used to ascertain the performance of the network.

4. (Currently Amended) The method of Claim 3, prior to the calculating step, further comprising computing a Fast Fourier Transform and obtaining a spectrum in the frequency domain.

5. (Currently Amended) The method of Claim 4, prior to the computing of the spectrum in the frequency domain, further comprising computing an average power of the plurality of points.

6. (Currently Amended) The method of Claim 5, prior to the computing step of the average power of the plurality of points, the ~~further comprising sampling a~~ plurality of points are sampled continuously at a frequency.

7. (Cancelled)

8. (Original) The method of Claim 3, wherein the computing of the OSNR is based on the following equation:

$$OSNR = \frac{P_{sig}}{P_{ase}} \frac{B_o}{R}$$

where the symbol "P_{sig}" denotes a signal power, the symbol "P_{ase}" denotes an Amplified Spontaneous Emission (ASE) power, the symbol "B_o" denotes a filter band width, and the symbol "R" denotes a wavelength resolution.

9. – 14. (Cancelled)

15. (Previously Presented) A method of utilizing a performance monitor cell to monitor a channel in a multiplexer, comprising:

tapping a portion of a signal from the channel and converting the portion of the signal to a digital signal;

sampling at least 1024 ~~plurality of~~ data points in the digital signal continuously at a frequency;

determining an average power of the ~~plurality of~~ points;

calculating a noise power density, wherein the noise power density is calculated by utilizing a spectrum in a frequency domain and a selected frequency range based on traffic protocol and transmission rate; and

determining an optical signal to noise ratio (OSNR) from the noise spectrum density and the average sampled points, wherein the optical signal noise ratio is used to ascertain the performance of the multiplexer.

Please add the following new claims:

16. (New) The method of Claim 5, wherein the predetermined amount of time is 10 ms.

17. (New) The method of Claim 5, wherein the plurality of points is approximately 1024 points.

18. (New) A method of utilizing performance monitor cells to monitor a multiplexer, comprising:

tapping a portion of a signal from a first channel in the multiplexer by utilizing a first performance monitor, wherein the first optical performance monitor comprises a first coupler, a first photodiode and a first amplifier;

tapping a portion of a signal from a second channel in the multiplexer by utilizing a second performance monitor, wherein the second optical performance monitor comprises a second coupler, a second photodiode and a second amplifier;

sending a signal generated by the first amplifier and sending a signal generated by the second amplifier to an analog-to-digital converter;

converting the signal generated by each amplifier from an analog signal to a digital signal by utilizing the analog-to-digital converter; and

sending each digitized signal to a digital signal processor to calculate a channel power value and subsequently report an optical to noise ratio.